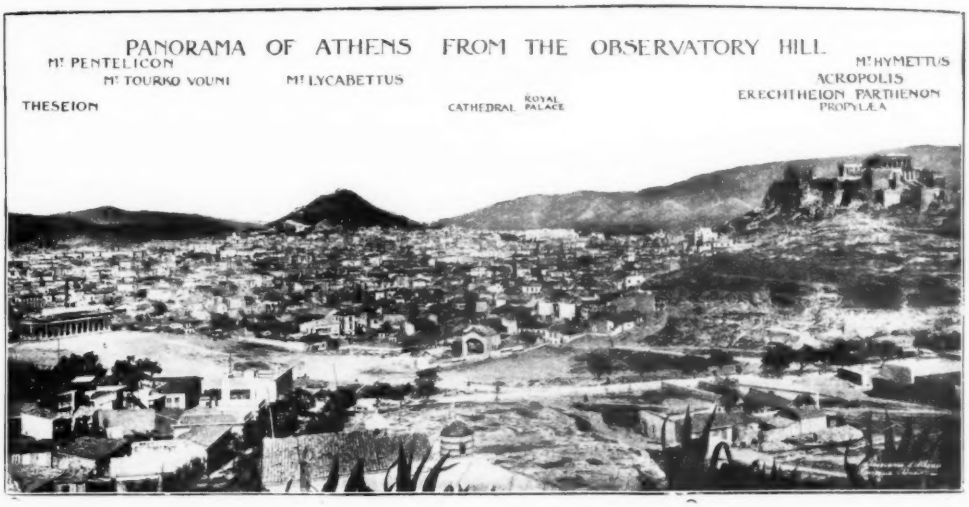


FIG. 1.

THE PARTHENON, AND ITS INFLUENCE ON THE ARCHITECTURE OF THE CLASSIC REVIVAL.

By CHARLES GOURLAY, B.Sc. [A.], Professor of Architecture, Glasgow and West of Scotland Technical College.

I.—THE PARTHENON.

ATHENS is situated four miles from the sea, and its port is the Piræus. The modern city lies between a lofty hill called Lycabettus, 910 feet high, and the hill called the Acropolis, which is about 510 feet in height. The latter is a rock of coarse bluish-grey limestone and red schist which was at first of a conical form, but just before the time of Pericles it was broadened to its present shape, so that it is now about 1,000 feet by 400, surrounded by very steep sides except at the west end.

The principal buildings, now in ruins, on the Acropolis are the Parthenon, Erechtheion, Propylæa, and the little temple of Nike Apteros, which were all built in the fifth century B.C., an era which has been fitly named the "Golden Age" of Greece. It is to the first mentioned of these—the Parthenon—that the reader's attention will now be directed. The building occupies the crown of the hill, and, as has been well said, "is the finest edifice on the finest site in the world." After passing through the Propylæa the best obtainable view of the Parthenon is seen, and its proportions as viewed from this point are certainly most impressive.

Although no building has been more completely and thoroughly studied than the Parthenon, yet on a close examination of the actual building as it now stands the student receives a more accurate impression of its real greatness than can be obtained by the study of Penrose's great work, *The Principles of Athenian Architecture*,* and of other works dealing more or less with this temple. As a result of thus studying the remains "on the spot," the impressions formed by the author are that it is undoubtedly the most admirably

* Which the author has chiefly consulted in preparing this article.

proportioned, beautifully detailed and soundly constructed building ever erected. There is no false construction about it, for

> In the elder days of Art
> Builders wrought with greatest care
> Each minute and unseen part—
> For the gods see everywhere;

and although these words of the poet Longfellow were written about a Gothic cathedral, yet they apply even more truly to this Classic temple.

The Parthenon was built between 454 and 438 B.C., and its architect was Ictinus, who wrote a book about the building, which is lost. Ictinus was assisted by Callicrates, who is sometimes referred to as if he were the master builder. The edifice was a temple dedicated to the virgin goddess Athena Parthenos, who was especially the deity of Athens, and was the goddess of knowledge and wisdom. In plan it consists of a naos or sacred cella called the Hecatompedon, which term indicates the length of this part to be 100 Attic feet, and it was in this naos that the statue of the goddess stood. The Hecatompedon was divided into three aisles by means of two colonnades of ten columns in each. Three additional columns were placed at the western end so as to form a stoa or ambulatory round that end in continuation of the side aisles, which enabled the statue to be seen all round. These columns were Doric with only sixteen flutes on their shafts, while the normal number of twenty is that used on the external columns. There is another naos to the west of the Hecatompedon, which is often called the Opisthodomus or treasury, but this naos is really the Parthenon proper, for in it the maiden goddesses known as the Parthenoi were worshipped. The columns in this naos were four in number and of the Ionic order, which, being more slender than Doric ones, would occupy less room on the floor. The space between the inner colonnade of the portico and the wall of the naos at the western end of the edifice is the Opisthodomus or treasury. Bronze

English Photo. Co.

FIG. 2.—THE ACROPOLIS, ATHENS, FROM PHILOPAPPOS HILL.

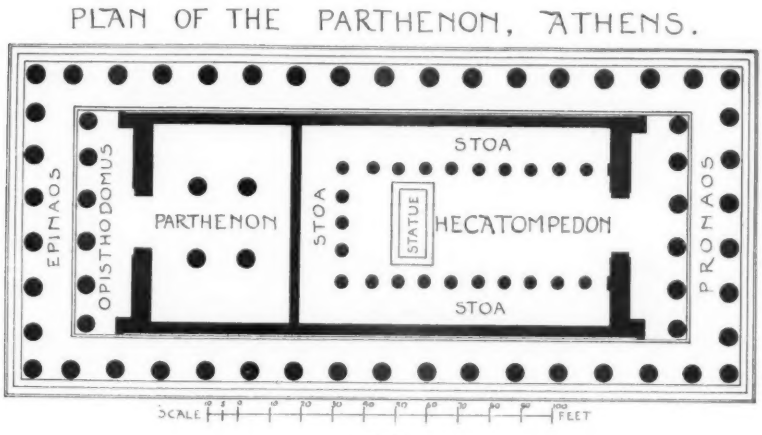


FIG. 3.

railings were placed between the columns of the inner colonnade, also between the end columns and the antæ, which railings extended the full height of the columns, while there were gates in the central opening. Thus this part was made quite a safe place for storing valuables, and hence it received its name.

The portico to the east is called the Pronaos, that being the front of the temple, while the one at the western end is the Epinaos. The edifice has eight columns on each front, and was surrounded by columns; hence it is termed an octastyle peripteral temple; and as it has seventeen columns on each flank—counting the corner ones both for the front and side—it is in accordance with the rule that a Greek Doric temple should have twice as many columns, *plus* one in the flank, as it had in the front. These columns are of the Doric order, of which they form the finest example. In height they are 34 feet 3 inches, being about five and a half times the diameter of the shaft at its base, which is 6 feet 3 inches, except the columns at the four corners, which are 6 feet 4½ inches in diameter, in order that when the angle column was seen against the sky it would not appear thinner than the others, while when seen along with the others the effect of the slight increase in diameter would be to give the corner of the edifice an appearance of greater strength than it would otherwise have had.* The entasis was a slight outward curve worked on the tapered outline of the column to prevent it appearing hollow, which appearance it would have if it were straight. The entasis on the columns of the Parthenon may be best seen by taking a position exactly in a line with the inner side of the front row of columns in the eastern portico and looking from south to north. In this view the inner line of the column is seen against the blue sky and the extreme delicacy of the curve becomes apparent.

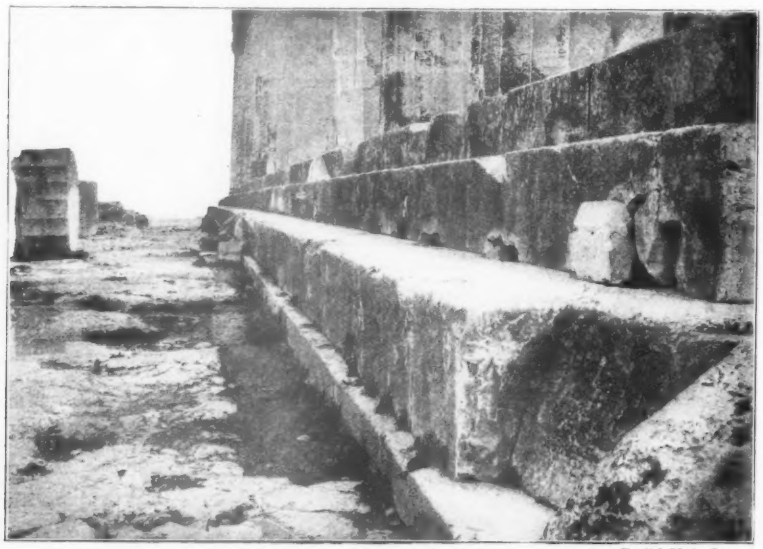
The columns rest on three great steps which form the stylobate, the length and breadth of the topmost step having in plan almost exactly the ratio of 9 to 4, the figures being approximately 228 and 101 feet respectively. These steps were not laid level, but were curved upwards in the centre of their length with the object of preventing them from appearing hollow as long level lines tend to appear. The curvature is so slight, however, that it is only perceptible when it is looked for. The steps vary slightly in height, being each about

* The fact that the columns next the corner ones are placed closer together than the others is another element which gives that appearance of greater strength in an angular view of the Parthenon.

1 foot 9 inches, and this very inconvenient height for ascending proves the necessity for the mounting blocks which were placed opposite the entrances.

Above the columns runs the entablature, the horizontal lines of which were also curved upwards, though to a less extent than those of the stylobate. At each end of the temple there was a pediment, between which ran the straight ridge-line of the roof. There is no doubt that the treatment of the external surface of the roof would be broad and simple, for only such would have the effect of binding the whole edifice together to form one grand mass.

Within the outer row of columns there was at both ends an inner row, which with the two cellæ rested on a platform raised two steps above that of the stylobate, while at the top ran the Panathenaic frieze, which was continuous round the whole of this inner block of the structure. The ceiling of the stoa, 9 feet wide, which extended along the flanks of the



English Photo. Co.

FIG. 4.—VIEW SHOWING CURVATURE OF STYLOBATE OF PARTHENON.

building between the outer columns and the walls of the cellæ, was of a double row of deep marble panels, called lacunaria; but at the porticoes this space was 11 feet wide, and the panelling was here supported by marble beams.

The roof of the temple probably consisted of framed trusses of timber placed over each of the internal columns, which may have carried horizontal rafters or battens laid so as to directly support the marble tiling. The tiles were of Parian marble, which being translucent would allow light in a subdued form to pass through for the illumination of the interior. All traces of the method of roofing are gone, but it is known that the tiling was of marble from the island of Paros. In Athens at the present day Greek churches are not well lit, and perhaps this tendency to poorly lit interiors may be derived from ancient pagan times. How the Parthenon was lit is a problem which many have tried to solve. It is probable that the amount of light which passed through the tiling was sufficient for most purposes, and that when greater lighting was required the door, which was 33 feet high and 16 feet wide,

was opened, whereby the interior would be flooded with light. This great doorway is slightly narrower at the head than it is at the sill, in order to prevent it from having the appearance of being wider above than below, which tendency would exist if the jambs were vertical. It is probable that the jambs were of wood covered with bronze.

The foundation was of rock, but as it was a conical point on which the building rested, a level site had to be prepared for it. This was done by levelling the rock at the north-west corner and by building over the remainder of the site a massive substructure of coarse stone, each block of which was rectangular in shape, thus enabling the work to be built in courses. This substructure was built in the time of Cimon, who was statesman before Pericles, and was intended for a temple of different proportions. Although this is so, yet it is remarkable that the upper surface of this substructure, upon which the stylobate rests, is curved. Further, the paving slabs in the interior of the cella, which are 12 inches thick, are not laid quite level, but have a gentle slope.

English Photo. Co.

FIG. 5.—THE PARTHENON: SOUTH COLONNADE.

The outer columns which rested on the stylobate were not built vertical, but are inclined slightly inwards, the object being to prevent their appearing to lean outwards at the top. The faces of the architrave and frieze were similarly inclined inwards, but the face of the corona of the cornice is inclined outwards, probably with the intention of preventing the inward inclination of the columns, architrave, and frieze from being observed by the spectator.

The architrave has a broad soffit, the two joints in which show that it is built of three pieces of marble placed side by side, the central parts of the interior sides being hollowed out to reduce the weight. Upon the architrave the triglyphs rest, and between these were slipped the sculptured blocks forming the metopæ, behind which hollow spaces were left, with the object of lessening the weight to be carried by the architrave. All these stones were, however, bound together with metal cramps. Above all, the large stones forming the cornice were laid. The cornice projected considerably beyond the face of the frieze, and had on its soffit mutulæ with guttæ formed on their lower surfaces. These mutulæ gave a broken lower edge

to the cornice, which made the shadow falling on the sculptured metopæ a broken-edged and not a straight-lined one.

The entire structure was built of Pentelicon marble, which is beautifully white when first cut, but soon turns slightly yellow upon exposure to the weather and in course of time assumes a golden tinge, while those parts which are less exposed become a rich brown, all owing to the oxidation of the iron contained in the stone, the result being to give the Parthenon a colour effect which is charming.

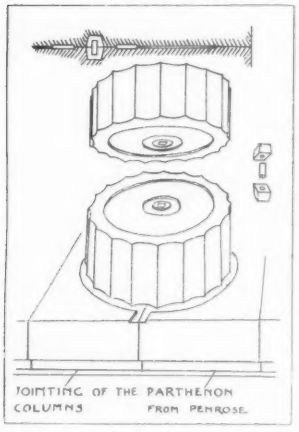


FIG. 6.

The walls of the Parthenon are built solid: their base-stones are called orthostatæ, and are double the height of the other courses. Mortar was not used in any part of the building—the close-fitting of the jointing of the stones left no room for any—while the large size of the stones used prevented, by their weight and the friction of their surfaces, any movement; yet, nevertheless, they are secured with iron cramps of shape, which are of very varied sizes—the average may be said to be about 20 inches long. These cramps were fitted into the beds of the stones at the vertical joints, extending downwards about an inch and a quarter, and had a thickness of about three-eighths of an inch on their edges. In later times these metal cramps were searched for by cutting into the walls from the face and tearing them from their places to obtain the iron, thus destroying the beautiful stonework and tending to make the building become ruinous. This close-jointing is a very remarkable feature of the Greek work of the Periclean age. It is so fine that one can hardly detect the joint either by sight or by feeling for it by the finger-nail, and the nearest resemblance to it the author has seen in modern work is in the building for the Houses of Parliament in Vienna, designed by Baron von Hansen, where the joints are very fine indeed, but not so close as they are in the Parthenon. The object of such close-jointing must mainly have been to give the appearance of a monolithic structure, but it will also be remembered that such perfect jointing is an element of great value as regards the duration of the building. It is considered that the fine-jointing of the Parthenon could only have been obtained by rubbing the blocks on one another; and if this were so, one can only marvel at the expenditure of both technical skill and patience necessary to carry out such a work. All the horizontal and vertical joints were thus treated, the outer edges of all the joints being left perfectly smooth, while within these smooth drafts the surface was slightly roughened, presumably to give the stones a firmer grip on one another.

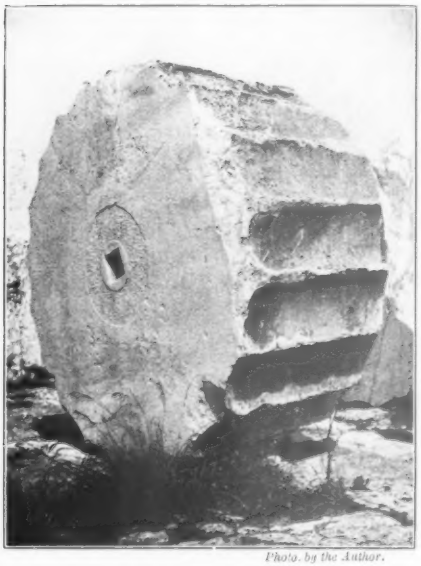


Photo. by the Author.

FIG. 7.—FALLEN DRUM OF THE PARTHENON.

Thus far, reference has been made only to the actual jointing; but how were the outer faces of the stones prepared, built, and finished? From unfinished buildings, such as the Propylæa at Athens, and others throughout Greece and Sicily, evidence has been obtained that a draft was accurately run round all the outer surfaces of every stone, and that the stones were built with unfinished faces, there being also projections, called ears or ancones, left on their surfaces to enable them to be set in position.

After the stylobate and pavement were in position the building of the columns was undertaken. A circular draft was cut on the top step of the stylobate sufficiently large to allow of the bottom drum of the column being exactly set and rubbed on the spot where it was to be laid. The fluting on this drum was worked at its base for the height of a few inches only, the remainder of the drum being roughly made to a cylindrical form. The inward inclination of the columns must have added considerably to the difficulty of forming this joint. Then the next drum was prepared by rubbing it on the one already in position. The exact section of the junction between the drums consisted of a perfectly close joint for nine inches all round the exterior, and for about 10 inches at the centre; the intermediate surface being slightly recessed for 18 inches all round, but next to the central level part the recessing was about one-eighth of an inch, and the bottom of this was rough. Then at the centre slightly tapered holes, about four by four inches on plan, and about three inches deep, were cut in each drum, into which cedar-wood plugs were fitted. Finally a round wooden pin or dowel was fitted into these plugs. After the rubbing of the one surface upon the other was completed there would be a scum, which it would be necessary to wash away before a close joint could be obtained, and to do so the drum would require to be raised. Probably the object of the pin was to guide the upper drum when it was being finally placed upon the lower one by the workmen. Further, in the case of an upper drum being rubbed upon a lower one which had been set in position, no doubt another object the pin might serve would be to prevent the very slightest movement of the drum or drums already placed.

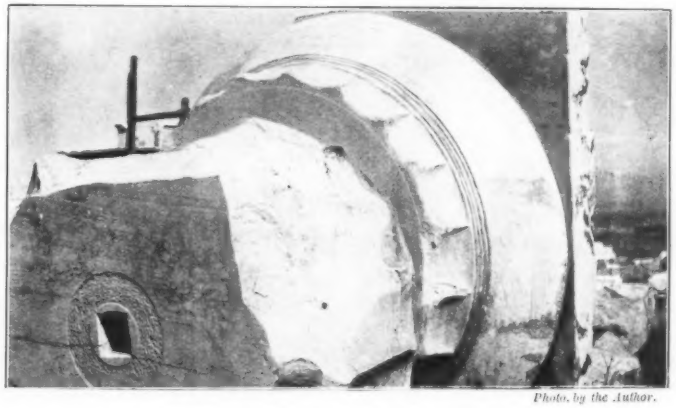


Photo. by the Author.

FIG. 8.—FALLEN CAPITAL OF THE PARTHENON.

The capital, with its abacus, echinus, annulets, and fluting, down to the hypotrachelium or necking, was on one block of marble, weighing, according to Penrose, about three tons, which was turned in a lathe. The uppermost drum had the fluting started on its upper edge, and on this drum the flutes were rather deeper in proportion to their width than they were on the lower drums. The section of the fluting was not an exact ellipse, but was formed of circular arcs. After the walls the entablature and all other parts of the building were built and completely finished; then the fluting was cut on the columns. This method of cutting the flutes after the columns were built may be compared with the modern way of preparing a zinc mould for the upper and lower surfaces of every drum, and cutting the flutes on each

one before it is placed in position. About 1841 some of the Parthenon columns were rebuilt, but the doing of this was, fortunately, discontinued because the drums did not exactly fit one another, and the result was very unsatisfactory. Finally the last part of the building to be completed was the stylobate. In this way there was very little risk of the sharp edges of the steps being chipped by carrying up the material for the walls.

The Parthenon was enriched with colour decoration, both internally and externally, though some authorities maintain that the application of this colour treatment may have taken place at a later time than that of the erection of the temple. Doric frets were largely employed because of their suitability for the treatment of the broad bands of marble which occur in many parts of the edifice. Perfect harmony prevailed between this decoration and the surface to which it was applied. On a flat surface a straight-line decorative form was painted, while on a curved one the enrichment was of a flowing form, suited to the nature of the curve, the honeysuckle and scroll forms being largely used for this purpose, as on the cymatium.

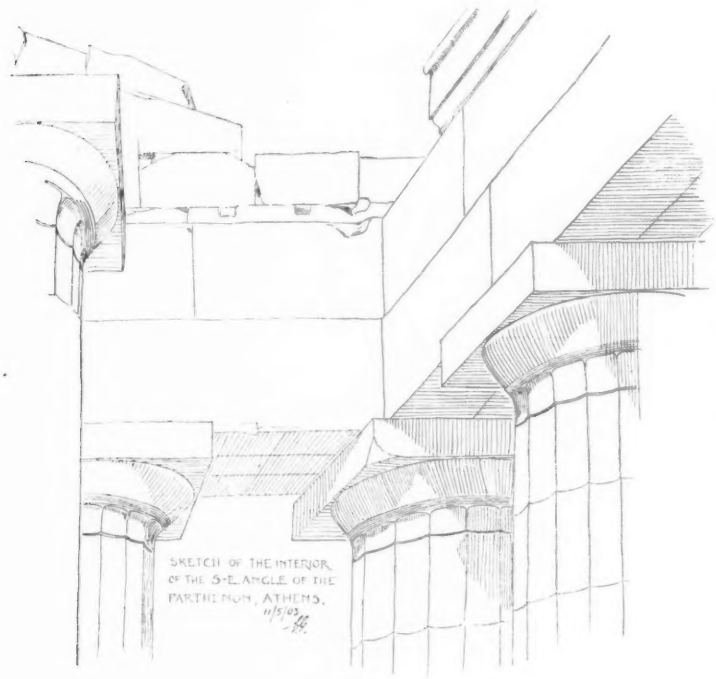


FIG. 9.

There appears to have been little carving on the building. There was the egg-and-dart on the capitals of the antæ, and the small bead-and-reel on the bed-mould of the cornice all round the exterior; also the lion's head near each corner of the temple, the antefixæ along the upper edge of the horizontal cornice on the flanks, and the acroteria on the top of the pediments.

Sculpture was, however, the principal enrichment of the Parthenon, and this was all executed under the direct superintendence of Pheidias, the greatest of the Greek sculptors. Pheidias is sometimes credited with the responsibility of directing the whole building; but, considering everything, there cannot be said to be any evidence of a sculptor's hand in the design of the structure, which is purely the work of an architect, while there is so much sculpture about the building that Pheidias would not have been able personally to execute all of it. His masterpiece was the great statue of Athena Parthenos, made of gold and ivory, which was placed in the Hecatompedon in 438 B.C. Unfortunately this statue is entirely lost, but rude copies of it exist on a small scale, as, for instance, the Varvakeion statuette in the National Museum at Athens, a cast of which is in the British Museum. The finest sculpture on the build-

ing was placed in the pediments, and here it was quite in the round. The metopæ were partly in high relief and partly in the round. These were on the outside of the temple, between the triglyphs. There were ninety-two of them, and all were of different design. The Panathenaic frieze was a band of sculpture in low relief, having a total length of 522 feet 10 inches. In height it is nearly 3 feet 4 inches, and it inclines forward slightly at the top, the relief of the sculpture being greater at the top than the bottom. It is placed in the only position in which it could be in order to have it continuous round the cellæ of the temple. It was entirely in the shadow cast by the entablature of the colonnade, and was therefore wholly lit by reflected light. By studying the effect of reflected light on casts of parts of the frieze it is possible for the student to appreciate the beauty of its illumination. How soft the shadows would be compared with their hardness and darkness had the direct light of the sun played on the sculpture! Further there were no shadows from columns thrown across it, as would be the case if it had been placed lower down. It is to be remembered that parts of the figures in the sculptured band were of bronze, and that colour was largely used for the sake of heightening the effect. Then Pheidias knew where the frieze was to be placed, with all the often-stated disadvantages of its position, and his intimate knowledge of these matters must have influenced him both in the design of the whole frieze and in its details.

Not much need be stated regarding the later history of the Parthenon. In the sixth century A.D. it was converted into a Christian church, dedicated to the Divine Wisdom (Santa Sophia). The plan internally was basilican with three aisles, and a semicircular apse was then made at the east end, the entrance being at the west. The Christians put a vault over the church proper, similar to the one which may still be seen over the Theseion at Athens. The Baldachino was supported upon four Corinthian columns. It was a Latin church from 1206 to 1458; an Orthodox Greek church between 1458 and 1460, when it was turned into a mosque by the Turks with little alteration from the form given to it by the Christians. During the siege of Athens by the Venetians in 1687, there was a powder magazine in the building which, being struck by a shell, exploded and destroyed the entire central part of the building. In 1688 the Turks again became masters of the city, and they erected a small mosque within the building, which was removed in 1835. The edifice then suffered from neglect and want of repair, the sculptures especially decaying or being destroyed, till about 1803 Lord Elgin removed those now known as the Elgin Marbles which are in the British Museum. After the Greek National Revival, Athens in 1822 came into the hands of the Greeks, who now take zealous care of the Parthenon and other ancient buildings in Athens.

Architectural design is the expression of the thought of man, and of this no finer example exists than the Parthenon. The construction of this great masterpiece, with all its refinements, could only have been accomplished by one having technical skill of the highest order. It is remarkable that these two qualities—the ability to design and to execute – are never found in a fully developed state in one man. Here, in the Parthenon, there is the united effort of the architect Ictinus and his craftsmen—perhaps with Callicrates at their head—and they have here produced the one edifice undoubtedly (as far as our knowledge extends) the nearest to perfection, in every sense of the word, of all the buildings ever erected. And just as architect and craftsmen worked together as one individual on the Parthenon, so the architects and craftsmen of the present time ought to work in order to perfectly design and execute the very complex buildings which are required in our day.

II.—THE INFLUENCE OF THE PARTHENON ON THE ARCHITECTURE OF THE CLASSIC REVIVAL.

From Ancient Athens it is not difficult to turn our thoughts to Edinburgh, which has been aptly termed the "Modern Athens," for, as has been often pointed out, there are marked resemblances between Athens and Edinburgh. Leith is the Piræus of Edinburgh, Arthur's Seat is its Mount Lycabettus, and the Castle its Acropolis. The view from the Castle over the City of Edinburgh and its surrounding hills, plain, and firth is remarkably similar to that from the Acropolis at Athens. Again, on the Calton Hill, there is the incomplete National Monument which was designed to be externally an exact facsimile of the Parthenon at Athens, here executed, however, in Craigleith stone, the best of sandstones, instead of Pentelicon marble.

This National Monument was proposed shortly after Waterloo was fought in 1815, to commemorate great Scotsmen. The public mind was at that time attracted to Greek architecture through the Greek revival in architecture, which was partly originated by the publication of Stuart and Revett's *Antiquities of Athens*, and by other works of a similar nature. In fact, Greek architecture was then the style of the day. Everything was right that was in the Greek style, and it was applied to churches, town halls, houses, prisons, &c. Hence the selection of the Parthenon at Athens as the model after which the Scottish National Monument on the Calton Hill was to be built. The plans were prepared by Professor C. R. Cockerell, R.A., and the work was to be executed under the superintendence of W. H. Playfair, of Edinburgh, both of whom were very able architects. The size of the edifice and every detail externally were to be the same as the Parthenon, and it is to be regretted that the scheme fell through for want of money. The foundation-stone was laid on the 27th August 1822, but only the foundations and the twelve great columns, with the architrave above them, were erected when the building was stopped. The steps of the stylobate of the portion built are not curved lengthwise, as were those of the ancient Parthenon, for this refinement had not been observed at that date; besides, as such curvature would enormously increase the cost of its erection, it could be omitted. Were this National Monument to be completed it would be a beautiful building, just because the original is so. Certainly it admirably suits its position on the top of the Calton Hill, at the east end of Princes Street, and it is to be hoped that some day it will be completed. Of course, if a Scottish National Monument were to be started now, there would be no such copying of an ancient building, no matter how beautiful it might be. Architecture is too truly a living art at the present time to allow of such a thing being done; but when a building has been begun,

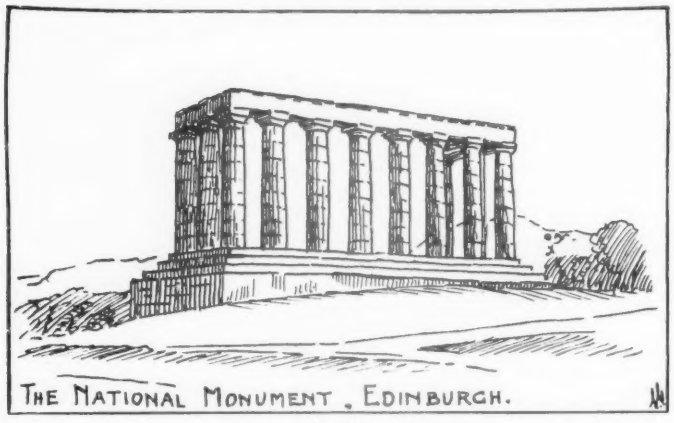


FIG. 10.

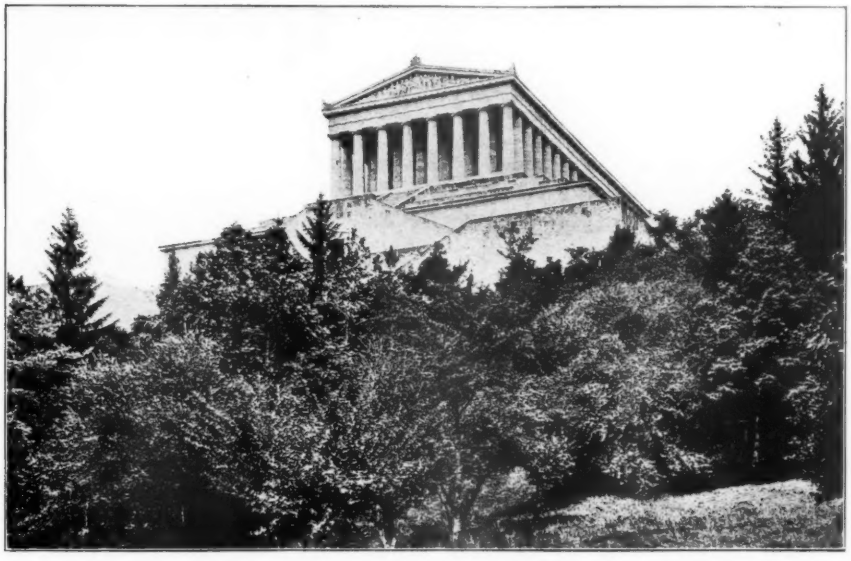


FIG. 11.—EXTERIOR OF THE WALHALLA, REGENSBURG.

FIG. 12.—INTERIOR OF THE WALHALLA, REGENSBURG.

its exterior should be completed according to the original plans. As regards the interior, its arrangement will depend entirely upon the purpose to which the building is devoted, and the author would suggest that the Corporation of the City of Edinburgh, to whom it belongs, might complete it as a city museum in which to house the many treasures of the Scottish capital.

Throughout the whole of Great Britain reproductions of the Order of the Parthenon, as porticoes or other adjuncts to buildings, were erected under the influence of the Greek architectural revival during the first half of the nineteenth century. One excellent instance of its application is the portico of the Justiciary Buildings in Jail Square, Glasgow.

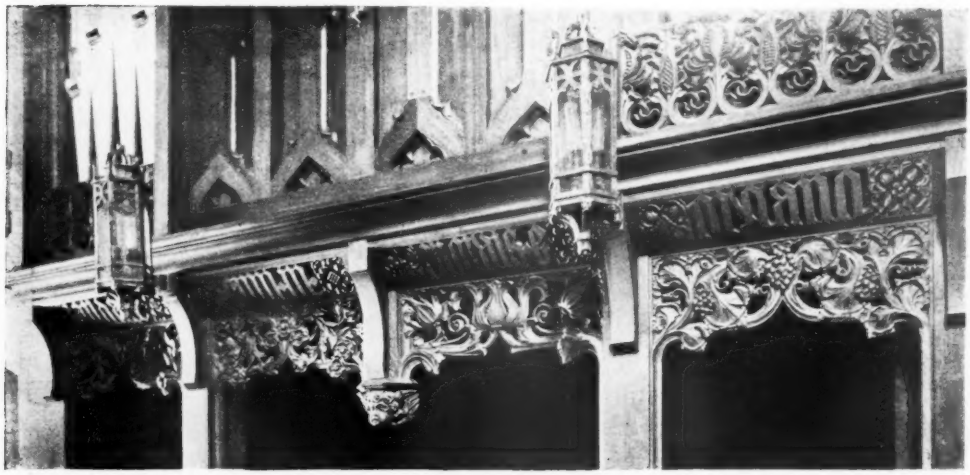
The Parthenon Order was similarly used all over the continent of Europe, one excellent example of the complete reproduction of the exterior of the Parthenon being the Walhalla, near Regensburg (Ratisbon), which was built as a German National Monument and Temple of Fame by King Ludwig I. of Bavaria. The foundation-stone of the edifice was laid in 1830, and it was opened in 1842. The site is on the crown of a slope above the Danube, and the monument is approached by ascending a great outer staircase containing 250 marble steps. Its dimensions vary slightly from those of the Parthenon, but practically the Order externally is an exact copy executed in white limestone. The architect was Leo von Klenze, who here produced a magnificent interior, entirely different, however, from that of the ancient Parthenon, of which the exterior was such a close facsimile. Internally the monument consists of one large hall, having on each side two projecting piers which divide its length into three compartments and support massive iron roof-trusses. In each of these three rectangular compartments there are large roof-lights glazed with ground glass, and there is one end window. No timber is used in the structure. The floor and walls are lined with polished marble from Bayreuth and Salsburg, while colour is very freely employed throughout the interior, producing quite a gorgeous effect.

In the United States of America there is one well-known example in the portico of the Custom House at Philadelphia, which is octastyle, and was modelled on the Order of the Parthenon. In scale the building is about four-fifths the size of the Parthenon, and its use is merely to form a façade for the block of offices used by the Collector of Customs and other officials.

By this review of the ancient Parthenon, and of those modern examples in which its Order has been applied as a mere façade decoration, one cannot but observe how unsatisfactory a thing it is to reproduce the design of another time; it may be described indeed as an archæological proceeding utterly unworthy of the true living art of architecture, which should express the aspirations and necessities of the age when its buildings are erected.

NOTES ON AMERICAN SCULPTURE, CHIEFLY IN RELATION TO GOTHIC WORK.

By E. W. Hudson [A.].



HILBERD MEMORIAL CHAPEL, CHICAGO. (MR. KIRSCHMEYER, SCULPTOR; MESSRS. CRAM, GOODHUE & FERGUSON, ARCHITECTS.)

ONE of the chief objects of my visit to the United States was to see what is being done there in the Gothic style. Its use is as certainly increasing in collegiate and ecclesiastical work, as the Romanesque of Richardson is declining in all classes of buildings, the rule being proved by exceptions in a few cases of domestic work. With the majority of public buildings of the last decade steeped in Renaissance, with the financial buildings mostly Grecian, and the commercial "blocks" of every conceivable and no conceivable style, things did not look promising for a result of much interest in Gothic sculpture. But a leaven is working powerfully towards that end.

Naturally, my first visit in New York was to the new Cathedral of St. John, Morningside Park, between 110th and 113th Streets. The building has been making slow progress during fourteen years from a design by Messrs. Heins and La Farge of New York.* The nave is not yet even begun. The crypt is completed, and the choir over it has reached the level of the eaves east of the crossing, and the Lady (or St. Saviour's) Chapel and one other of seven to be built round the apse are completed with the exception of the altars and internal decorative mosaic. Contrary to general practice in England with civic and commercial buildings, this great work goes on piecemeal, and the eastern portion thus begun promises to be completed before any other portion is started. For one thing, unusual in church work, some of the statues are already in their niches outside and inside the chapels referred to; some are offered up, while others are being modelled in a temporary studio on the site.

Mr. Gutzon Borglum, the sculptor entrusted with the modelling, kindly gave me particulars of his scheme, and showed me the work in progress both in his temporary and in his permanent studio at East 38th Street, New York.

I said "entrusted with the modelling," for the sculptor was until recently handicapped by the fact that his models had to be sent away to be *mechanically wrought* and finished by machinery, under contract, he exercising a general surveillance, and having to pass or reject the result when complete, according as it reached his standard or not. Hence it is unfair for a passer-by to judge of anything set up until it can be seen finally approved. In no other case has such a method of proceeding been forced upon him. It does not tend to a good understanding between artist and patron. I could but

* According to the book of published competitive plans, an excellent Byzantine design was chosen, and huge piers were built suited for a wide dome at the crossing. The external walls, however, of the superstructure being executed are in a late free Gothic style, such as in England might be called "Victorian," and suggest entire change in design.

compare it with the way the late Alfred Stevens was working out his contract for the Wellington Monument when I visited his studio years ago in Eton Road, Haverstock Hill. While other critics had looked and condemned the work at St. John's Cathedral, I felt it unfair to do so offhand; I therefore sought out Mr. Borglum, and he gave every facility for understanding his views and his position.

FIG. 1.—STATUE OF ST. SIMON, CATHEDRAL OF ST. JOHN, NEW YORK. (MR. GUTZON BORGLUM, SCULPTOR.)

For a merely nominal sum which cannot be called remuneration Mr. Borglum agreed to make models for all statues required, and with the enthusiasm of a true artist he has manfully stuck to his undertaking for three years, and produced the models from which the figures have been "machine-made." Owing, however, in part to the cutting price at which the Committee let this part of the work, the "manufacturer" has modified the execution to suit his blocks of stone (and the price), depressing an arm, drawing in a leg, or closing a wing, as economy dictated. The consequence was that after protest to the architect at their being set up the sculptor had no alternative but to disown and condemn much of the finished work, while still continuing to produce the other models according to his undertaking. His protests have, according to his letters to the Press, merely been acknowledged, and his insistence that the work should be done under his own eye on the spot practically resulted in a deadlock. It is hard to believe that in this wealthy city no advantage should have been taken of the artist's desire to give of his best to a great work of the kind.* Mr. Borglum, moreover, is so jealous of his work that, a controversy having arisen over a model for an angel which critics said was too generously endowed with an outline of femininity, although otherwise beautiful, he settled the matter by breaking it up and consigning it to the rubbish heap.

It would have been wiser, perhaps, if funds were short, to have deferred such accessory features as sculpture and carving to a future period, as we have to do in England. In fact, if it be the case as the architect stated in explaining their non-adoption, that "granite will not in the form of flying buttresses stand the climate," it is less likely that limestone will be more enduring in figure form; and carving and such accessories would have been better kept to the inside.

Frontenac limestone is being used for outside and inside statuary; but even in the latter position the finished figure produced in the same way is not equal to the model, as may be seen by comparison of statuettes in St. Columba's Chapel with the sculptor's models. This must be expected where the artist's conception is entrusted to someone else to fabricate away from the artist's supervision.

The scheme for the sculpture on the outside of the eastern chapels is as follows:—

Central (Our Saviour's) Chapel (*a*, on plan, fig. 3).—In the gable, young Christ seated; S.E. buttress, St. Michael; N.E. buttress, St. Gabriel; under window N. to S., Zacharias, Virgin Mary, St. Simon [fig. 1].

St. Columba's Chapel adjacent (*b*, on plan).—On four buttresses at angles, from N. to S., St. Patrick, St. Andrew, St. George, and St. David. St. Columba (small) in window tracery. All these are in position. Models for the Twelve Apostles, 10 feet high, are in progress for niches on top of

* Since this was written, Mr. Borglum's persistence has prevailed. The statues and statuettes he disapproved of are being recut under his immediate supervision, and his withdrawal from the work thus prevented. This means that the seventy-five or more small figures in the interior of the Chapels will form one of the largest collections under one roof of figures of apostles, angels, and religious leaders of all ages since the year of our Lord, by one eminent sculptor, and they constitute a work of which sculptor and city may be proud.

ST. AUGUSTINE.

THE VENERABLE BEDE.

WILLIAM OF WYKEHAM.

BISHOP HOOPER.

FIG. 2.—CATHEDRAL OF ST. JOHN, NEW YORK: STATUETTES IN CHAPELS. (MR. GUTZON BORGLUM, SCULPTOR.)

the choir-buttresses, at the height of about a hundred feet. Eleven are completed.

Four of the statuettes for the interior of the chapels are shown in fig. 2: The Venerable Bede;

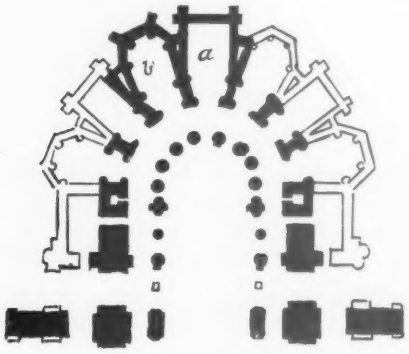


FIG. 3.—CHOIR PLAN, ST. JOHN'S CATHEDRAL, NEW YORK. Parts erected shown in black.

St. Augustine; William of Wykeham; Bishop Hooper.

Mr. Borglum's work shows a marked originality, tending even to impressionism, and his determination not to sink his individuality has brought upon him the criticism of contemporaries of a passing generation working in Gothic, whose sympathies are with the archæological exactitude of the Revival and who strive to get as near as possible the effects of a past age. On this account Mr. Borglum will probably have to wait awhile for full appreciation, as M. Rodin himself has had to do. He would seem, however, indifferent to praise or to blame, and appears determined to retain his individuality, although it has involved the refusal of commissions for collaborating with architects whose buildings in American cities require as the *summum bonum* exact compliance with conventional precedent.

Mr. Borglum's early years were passed in San Francisco under Virgil Williams and Wm. Keith, while seeking also in painting direct inspiration from Nature. He worked two years in Spain, and in 1893 returned to America. Coming later to England and making his mark by exhibitions, including that held in 1896 at the Hanover Gallery, London, he received important commissions for decorative painting. Sculpture, which he started with as a boy, was taken up again somewhat later. He was made a member of the Société Nationale des Beaux-Arts of Paris at the age of twenty-five.

Amongst his later exhibits the statuette of "An Armed Boer" attracted much attention as a strong piece of work of contemporary interest. In the New Salon at Paris his study of a "Horse bending over a dead Indian" obtained for him membership of that body.

One of Mr. Borglum's important groups in bronze, "The Mares of Diomedes," was purchased and presented to the Metropolitan Museum of Art, New York, by Mr. Jas. Stillman. Another notable study is the model for a statue of John Smithson, the Englishman who founded the Smithsonian Institution in Washington.

The small sitting figure of John Ruskin at an advanced age is a masterly piece of work, full of dignity and force, though in repose [fig. 4].

"The First Nugget," also a forceful work in bronze, is a portrait of Mr. Mackay, known as the "Silver King." It was made for the College of Mines, Nevada, of which Mr. Mackay was a benefactor. It represents a sturdy miner holding the handle of his pick which rests on the ground; in the other hand is a large nugget which he has just dug out.

Mr. Borglum, as a Californian, is as much at home with the points of a horse as he is with the muscles of the human body, and in the competition for the General Grant Memorial for Washington his exact knowledge gave vigorous and more naturalistic expression by adhering to normal representation, so losing something of the Rodinesque effect, or the weird and almost uncanny impression left by some of Mr. Gilbert Bayes' work.

The study entitled "I have piped unto you and ye have not danced" tells the story of the world's

FIG. 4.—JOHN RUSKIN. (MR. GUTZON BORGLUM, SCULPTOR.)

apathy towards genius until it is called away from earth and it is too late to hear such a voice except in echo. This work is to be executed in marble.

FIG. 5.—SPECIMENS OF MODELS FOR GARGOYLES, PRINCETON UNIVERSITY. (MR. GUTZON BORGLUM, SCULPTOR.)

FIG. 6.—PRINCETON UNIVERSITY: EXAMPLES OF SCULPTURE BY MR. GUTZON BORGLUM

FIG. 7.—MILITARY STATION, WEST POINT (MESSRS. CRAM, GOODHUE, & FERGUSON, ARCHITECTS)
EXAMPLES OF GROTESQUES MODELLED BY MR. LEE O. LAWRIE.

"A Dream of Motherhood" is one of his most expressive, imaginative works in the nude—a young woman straining forward in anticipatory yearning, with hands pressed upon the bosom. "Night" is a lightly veiled figure, calm and beautiful, but less intense.

Mr. Borglum's model for the General Sheridan statue at Washington has just been selected by the Commission. The general is reining in his horse, and returning a salute by his men. It is to be of heroic size, and to stand on a low pedestal surrounded by a platform at the top of six steps. Marble benches and fountains are to face the statue. The site is in Sheridan Circle, at Massachusetts Avenue and Twenty-third Street.

That Mr. Borglum has not caught the mediæval spirit to the extent of destroying individuality may be seen in the models for Princeton University. Examples are shown in figs. 5 and 6 of some of the gargoyles, pateras, and bosses. In this matter of individuality he differs from Mr. Livingstone Smith, who designed the grotesques for the City of New York College, where mediæval exactitude is so sharply expressed that they might have been modelled in the fifteenth century. (Examples of them are shown in fig. 8.) It is interesting to compare these with the *chimères* of Notre Dame, Paris.

The archæologist may contend that Mr. Borglum's work is hardly sympathetic with the mediæval spirit; but the cathedral at New York cannot be called mediæval; it does not pretend to be other than a twentieth-century design, with details on Gothic lines.

Opinions will no doubt differ as to the compatibility of Rodinesque statuary with pure Gothic. In the eyes of the Pugin-Hardman school it would, of course, appear unorthodox. But look, *e.g.*, at the *chimères* on Notre Dame, Paris. Are they discordant with the architecture? Yet how much they differ from the regulation figure under its canopy and from the restrictions of geometrical tracery. Mr. DeKay, with broader views, describing Rodin's "Le Penseur" in front of the Pantheon, Paris, says:—"It would suit better the neighbouring church of St. Etienne (du Mont), with its mixture of styles, including Gothic. It belongs with gargoyles and statues under canopies, with pointed arches, and the splendid spring upward of flying-buttresses, and vaulted choir."*

One trait is noticeable in Mr. Borglum's practice. He shares honours with his assistants at the Cathedral, who, be it noted, are Englishmen—Mr. Price and Mr. Gregory. They work together in the light of day, and their names are added to his own signature on the work wherever done jointly.

Mr. Borglum, as stated above, was first known by his oil paintings, and he is evidently equally at home with landscape, portraiture, and decorative painting. In the first order of work he had the honour of a command from Queen Victoria for his canvases to be sent for her inspection; in the second order, his work may be seen in the galleries of the wealthy; and in the third, his mural paintings at the Queen's Hotel, Leeds, "The Story of Pan," "The Coming of Guinevere," a surface of 340 square feet, are evidences of his versatile ability. There may also be seen at the Midland Railway Hotel, Manchester, an important series of panels from his brush, "A Midsummer Night's Dream."

One hears on all sides of the entire absence of the commercial element in Mr. Borglum's practice. He gave his services for a year to the work of reorganising the Sculpture Class at the National Academy, New York, appropriating for prizes to the students the $500 set apart for a teacher's salary. With his hands full of important commissions for American millionaires, he is yet doing all he can to beautify the Metropolitan Church in face of obstacles that might deter any but an enthusiast who enjoyed the friendship of John Ruskin.

Mr. Kirschmeyer is another sculptor who has done good work in Gothic churches in the United States, almost exclusively in wood. Part of the tabernacle work at Hilberd Memorial Chapel, Chicago, is shown at the beginning and end of this article.

Mr. Cram is the author of several works relating to Gothic architecture. He is an enthusiast for the style, like his partner, Mr. Goodhue, with whom it is a pleasure for anyone with lingering regrets over the passing of the Victorian Revival to converse. These architects, with a few others practising in New York, Boston, and elsewhere, form together a potent voice crying in the wilderness.

Mr. Jantsen, a Dutch sculptor, has sympathetic feeling for Gothic, as evinced in the four figures for the reredos at St. James's Church, Philadelphia [fig. 9]. He has also, with equal sympathy and exactitude, taken to Spanish detail for Messrs. Cram, Goodhue, & Ferguson for some Roman Catholic churches in Mexico.

Mr. Domingo Mora sculptured the stonework of the altar and reredos at All Saints', Dorchester, for the same architects.

Mr. Lee O. Lawrie modelled the grotesques for Messrs. Cram, Goodhue, & Ferguson at the Military Station, West Point, of which several are shown in fig. 7. They appropriately represent types of ancient military weapons, &c.

American architects are apparently anxious to impart some humour to work in this commercial epoch. Mr. Livingstone Smith, as mentioned above, designed for Messrs. G. Post & Sons many grotesques, which are executed in white semi-glazed terra-cotta, for the City of New York College, on Harlem Heights, New York. They were modelled by Mr. Grendelis. A few are shown in fig. 8. They represent Egyptian Architecture; Grecian Architecture; Study; a Smith; a Fitter; Carving. Mr.

* Review of Frederick Lawton's *Life and Work of Rodin* (Scribner's).

FIG. 8.—CITY OF NEW YORK COLLEGE (MESSRS. G. POST & SONS ARCHITECTS): EXAMPLES OF GROTESQUES DESIGNED BY MR. LIVINGSTONE SMITH.

Smith has shown his ability in quaint mural painting at the University of Pennsylvania in a way that I think the late Wm. Burges would have approved, the medium being oil on a dull natural burlap.

FIG. 9.—ST. JAMES'S CHURCH, PHILADELPHIA : FIGURES ON REREDOS. (MR. JANTSEN, SCULPTOR.)

A large volume might be filled with a detailed account of those who are working on Classic and Renaissance lines in America, many having come from oversea to share in that prosperity which a rich country in the course of a wonderful development is enjoying. How many are actually American-born it is impossible to say. Space only admits of reference to a few.

Mr. Philip Martiny, an Alsatian, studied at Strasburg and worked at Rheims. He subsequently did some fifteenth-century Gothic work at Niort, Southern France. Circumstances have kept him chiefly to Renaissance since he came to the United States, and he has done much work for Messrs. McKim, Mead, & White, also for the Government, at the Library of Congress, Washington, where work by many of the leading sculptors in Renaissance is in evidence, among others Messrs. B. A. Pratt, Boyd, Adams, Hartley, Warner, MacMonnies, Bartlett, Flanagan, Ward, and Donohue.

Mr. Daniel C. French has executed groups in front of the New Customs House, New York, representing the four quarters of the globe; groups of "Commerce" and "Jurisprudence," for the Federal Building, Cleveland, Ohio; statues of Governor Wolcott and other figures for State House, Boston; a statue of Francis Parkman, the historian, and of Senator Hoar, for Worcester, Massachusetts; a quadriga, and large figures of "Truth," "Jurisprudence," "Charity," and "Courage," for Minnesota State Capitol; and considerable work at Boston Library.

Mr. St. Gaudens executed two heroic statues of Lincoln, the Shaw Memorial, Boston, statues of General Sherman and Admiral Farragut, New York; figures representing "Portugal" and "Holland" at the Customs House, New York.*

Mr. E. L. Barrias executed the "Record Monument," United States; Mr. Fred W. MacMonnies, the "Army Monument," Brooklyn; Mr. P. W. Bartlett, "Michael Angelo," Washington Library; Mr. J. Massey Rhinds, a Fountain Group in Mr. Geo. J. Gould's Gardens, Lakewood, and pediments and heroic figures at Shelley Court House, Memphis, Tenn.; Mr. Thos. G. Crawford, "Peri at the Gates of Paradise," in the Corcoran Gallery, Washington; Mr. Thos. J. Batt, statues of Washington, at Boston and Methian, Massachusetts, Montclair, New Jersey, and of Webster, Central Park, New York.

* Since this was written, Mr. St. Gaudens has died. He seems to have been considered one of the most talented sculptors of his generation. An exhibition of his works was held at the Metropolitan Art Museum in March last.

Mr. G. Grey Barnard has been working on important groups for the Harrisburg Capitol. His complaints of payments withheld and contracts broken by the architect and committee got into the Press, and formed the subject of a public inquiry. The ground covered by this inquiry included charges of "graft" and corruption over this and other contracts, the extent of which must appear incredible to anyone living outside the United States and not conversant with its daily Press. It is stated that the French Government offered to purchase several of Mr. Barnard's groups, to provide a studio, and to bestow upon him the cross of the Legion of Honour if he would remain in France, but he declined the distinction, and preferred to return to his native country. The sculptor's position seems often less happy than that of his brother of the brush, and financial reward is rarely his only aim. The Metropolitan Art Museum, New York, owns Mr. Barnard's "Two Natures in Man," a truly remarkable production.

The figures representing foreign nations and Europe on the façade of the New Customs House, New York (Mr. Cass Gilbert, architect), are illustrated in the *Architectural Record*, New York, for July 1906, and are by Messrs. Johannes Gelert, Germany; F. E. Elwell, Rome; F. M. L. Tonetti, Spain and Venice; Aug. Lukerman, Genoa; Chas. Grafly, France; Dan. C. French, Europe; F. W. Ruckstall, Phœnicia.

Mr. Chas. H. Niehaus executed "St. Louis," in front of the Art Building at St. Louis, and the McKinley Monument, Canton, Ohio.

The Jefferson Davis Memorial at Richmond, Va., was recently unveiled. A bronze statue of the great Confederate leader, with the right hand outstretched and the left on a Doric pedestal, stands on a granite block in front of a column seventy feet high. A semicircular colonnade with a pier at either end partly incloses the memorial. Messrs. E. V. Valentine and W. C. Noland collaborated in its production. The ill-fitting frock-coat and trousers and the ugly bow at the neck form the usual drawback to a successful work; the figure, however, commands attention by its *verve* and dignity.

Edward Kemeys, the animal sculptor, who has just died, was a native of Savannah. He went through the privations and hardships of the Civil War in his early manhood. Among his works are "The Still Hunt," in Central Park, New York; "The Wolves," Fairmont Park, Philadelphia; "The Lions," at the Art Institute, Chicago; "The Prayer for Rain," Champaign, Illinois; "Buffalo and Wolves," exhibited at Paris thirty years ago; and "Panther and Cubs," Metropolitan Museum, New York.

Mr. Solon H. Borglum is well known for his work in the last-named field of art.

Mr. V. Alfano is modelling groups and figures for important commercial buildings in New York. This, unfortunately, has to be done against time, the result depending finally on the chisel work. His group of "Riches rewarding Labour and Knowledge" for the City Investment Building, Broadway, New York, is just completed for Mr. F. H. Kimball the architect. In his large study of "Cicero declaiming" one sees evidence of his versatility. The cosmopolitanism of art, too, is shown by his Italian sympathy with and choice of Irish poetry as an inspiration for subjects for his chisel, associating in romance-land Thomas Moore with Alfieri or Tasso in other works.

Commercial combination in the United States obliges many foreigners of ability to take work under "firms" of carvers, decorators, cut-stone workers, &c., as a start; and while a few of them force their way to the front, there are good men who have worked for years earning what by comparison are good wages—"big money," as the term goes—in the "plants" of masons, terra-cotta works, &c.

American sculpture is now represented in Paris by an equestrian statue of Lafayette, in bronze, in the square of the Louvre. It is by Mr. P. W. Bartlett.

Happily the cult of the hideous in sculpture does not seem to have been entered upon. Arnold Böcklin's extraordinarily hideous masks at the Art School, Bâle, are scarcely likely to appeal to travelling Americans and become the fashion on the other side of the Atlantic. They are described by one writer as showing "fresh feeling." So do the horrors at the entry to the two show-places in the Boulevard Montmartre, Paris; but what a demoniacal freshness! They need something more than such "freshness" to recommend them, and perhaps one need not even regret that M. Rodin's figures for "The Gate of Hell" have never been finished. If the vulgar go to see the banal shows at Coney Island, New York, the men who control civic and commercial buildings are generally travelled men who desire to import all that is considered beautiful into the United States if money can do it; they would, however, draw the line at such works as "Le Ciel" and "L'Enfer" of the Paris cellars.

When we look back forty years, to the time when most people in England were ignorant that there were sculptors in America until Hiram Power's work came to London, we must recognise the great advance that has been made in sculpture in the United States, allowing even for the large numbers of talented foreigners who have settled there. It is difficult to distinguish them now from natives, though Mr. Taft's book * is a help in some cases.

Amateurs, too, have entered the field with credit—as, for instance, Dr. W. Rimmer, a physician, whose "Falling Gladiator" is in Columbia College Library, New York; and still, I believe, living in retirement, the lady who as Miss Vinnie Ream

* *History of American Sculpture*, 1903.

was until recently the only female entrusted with a commission by the Government—for statues of Lincoln and Farragut in Washington. Want of space, not of appreciation of their work, obliges me to omit reference to other ladies, professional and amateur.

Americans may justly taunt us with the poverty of our sculpture, arising from parsimonious governmental administration, not from want of talented sculptors. It is a shame to us that after forty years the pedestals on the Victoria Embankment should be still bare of statuary. Even the group at the end by Westminister Bridge only came to us as a gift. Are we waiting for some rich American speculator who has made a "corner" in something or other, and become a multi-millionaire by squeezing the community at large, to ease his conscience by paying for statuary for the adornment of the capital of the British Empire?

We in England may well envy the money that is being spent on sculpture and deco ative painting by the Government and private patrons in the United States, although it cannot be said that the result at present shows the refinement which characterises public monuments and statues in France. The spirit, however, is in course of evolution, and as the *New York Press*, speaking of ideals in a practical age, puts it—referring, amongst others, to Mr. Borglum—"Right or wrong, there is a great artistic future in store for American civilisation when men fight with such fidelity to their dream of art and harmony."

It is earnestly to be hoped that the new cathedral for Washington will exemplify the harmony which should exist between the "Mother of the Arts" and her daughters, and that the scheme of art once clearly set forth will not be tampered with by committees and be subject to the predilections of individuals, but will crystallise into a lasting monument of refinement and beauty, aided by a sculptor whose genius is not hampered by temporal anxieties or official indifference and "graft," or disheartened by the setting up of mechanical travesties of his work. Though its surroundings may be of Classic form, one may rejoice in this latest Gothic *chef-d'œuvre* striking a new note in the "City of magnificent distances."

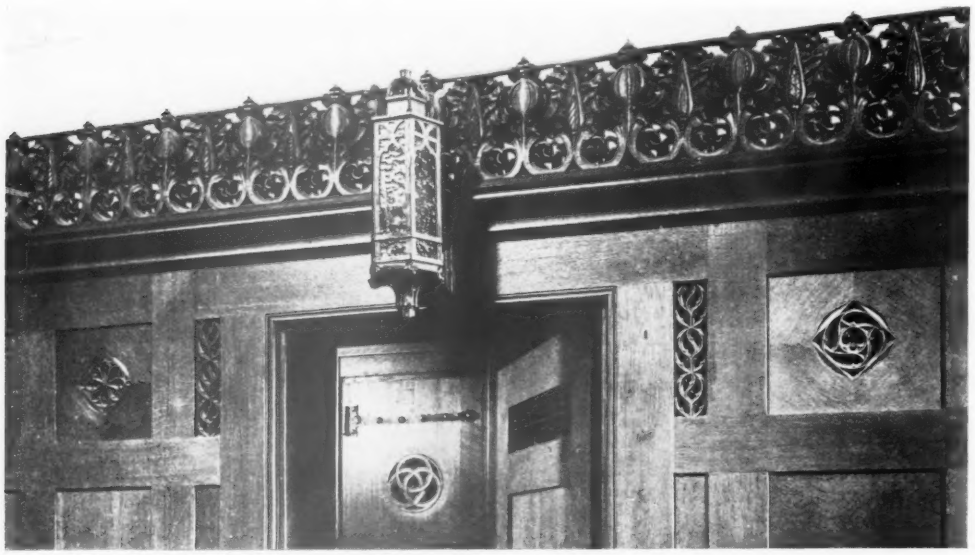


FIG. 10.—HILBERD MEMORIAL CHAPEL CHICAGO. (MR. KIRSCHMEYER, SCULPTOR.)

9 Conduit Street, London, W., *26th September* 1908.

CHRONICLE.

Arrangements for the Session 1908-09.

The arrangements for the evening meetings of the coming Session are almost complete and the programme will shortly be issued. The President, Mr. Ernest George, will deliver the Inaugural Address of the Session on Monday, 2nd November, and the Address to Students on Monday the 1st February. The annual exhibition of drawings submitted for the Prizes and Studentships in the gift of the Institute will open on the 19th January. The Council's Award will be made known on the 18th January and the Presentation will take place on the 1st February. The Sessional Papers so far arranged include the following:—"The Elizabethan House as illustrated by Contemporary Architectural Drawings," by J. Alfred Gotch, F.S.A. [*F.*]; "Public Abattoirs," by R. Stephen Ayling [*F.*]; "Technical Institutes," by Sir Aston Webb, R.A. [*F.*]; "Smoke Abatement," by Sir Wm. B. Richmond, K.C.B., R.A. [*H.A.*]; "The Architectural Work of the London County Council," by W. E. Riley [*F.*]; "The Principles of Internal Decoration," by T. R. Spence. The subjects of two other Papers, including one by Mr. John W. Simpson [*F.*], will be announced later. The Presentation of the Royal Gold Medal will take place on the 21st June. On the 2nd July next the Institute will have completed its seventy-fifth year of existence.

Copyright in Works of Architecture.

The Société Centrale des Architectes français has addressed a letter to Mr. Ernest George as President of the Royal Institute of British Architects inviting support of the Society's proposals in favour of extending to architects equal privileges of copyright with those enjoyed by painters, sculptors, engravers, &c. By Article 4 of the International Convention of Berne (1886) copyright is granted to "works of painting and sculpture;" and the French Society, with a view to giving effect to the resolutions adopted at the International Congresses of Architects at Madrid (1904), London (1906), and Vienna (1908), are moving for the introduction into the clause of the word "architecture." This question, with other proposed modifications of the articles of the Berne Convention, is among subjects to be discussed at the approaching International Diplomatic Conference at Berlin. The French proposals, which have been drawn up by delegates of the Société Centrale, are set out in full in *L'Architecture* for the 8th and 15th August.

The following letter on the subject has been addressed from the Institute to Sir Edward Grey, Secretary of State for Foreign Affairs:—

Royal Institute of British Architects, 9 Conduit Street: 18th August 1908.

Sir,—With reference to the International Diplomatic Conference to be held in Berlin in October next:

The French Government, upon the representation of the Société Centrale des Architectes français (a copy of whose "Note" we have the honour to enclose for your information), is, we are informed, prepared to consider favourably the insertion of the word "Architecture" in Article 4 of the Berne Convention, after the words "Peinture et Sculpture." This proposal appears to the Royal Institute of British Architects to be reasonable, and we therefore respectfully request that you will honour it with your support, and direct an intimation of our accord with our French colleagues to be conveyed to the British representatives attending the Conference at Berlin.

The Royal Institute of British Architects ventures to approach you on the subject, not from any selfish desire to benefit thereby, but with a view to advancing the general "entente" between the two countries. Most of the other nations adherent to the Berne Convention are, we are informed, in favour of the proposal; and as *unanimity* is required before any alteration can be made to the text of the Articles, the non-agreement of Great Britain might result in the postponement of the matter for ten years, the period required to elapse before another conference can be held.

We have the honour to be, Sir,

Your most obedient servants,

Ernest George,
President.
Alexander Graham,
Hon. Secretary.

Books recommended to Architectural Students.

A Joint Committee of the Board of Examiners and the Board of Architectural Education have now completed the revision of the list of books recommended to architectural students as indicating generally the nature and limit of the course of study required for the Institute Examinations. The list is given below, and it will appear also in

the forthcoming KALENDAR in the chapter relating to the Examinations :—

GENERAL.

Atkinson, T. D.: English Architecture. 1904.
Belcher, J.: Essentials in Architecture. 1907.
Brown, G. Baldwin: The Fine Arts. 1891.
Brown, G. Baldwin: Arts in Early England. 1903.
Choisy, A.: Histoire de l'architecture. 1899.
Choisy, A.: L'art de bâtir chez les Egyptiens. 1904.
Cummings, C. A.: History of Architecture in Italy, from the Time of Constantine to the Dawn of the Renaissance. 1901.
Fergusson, J.: History of Architecture of all Countries. 1893.
Gwilt, J.: Encyclopædia of Architecture. 1888.
Simpson, F. M.: A History of Architectural Development. 1905.

CLASSIC.

Anderson, W. J., and Spiers, R Phenè: Architecture of Greece and Rome. 1908.
Chambers, Sir W.: Civil Architecture. 1826.
Cockerell, C. R.: Temples of Jupiter Panhellenius at Ægina; and of Apollo Epicurius at Bassæ. 1860.
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The Public and Architecture.

That a London daily should devote space to criticism of London architecture is a circumstance unique enough to merit note in an architectural journal. About a year ago the suggestion was hazarded in these pages that the daily press, by the occasional admission into its columns of competent criticism of architectural work, might be a powerful auxiliary in awakening public interest in the architecture of our cities. *The Times* on two occasions lately has favoured its readers with articles containing some well-informed criticism on architecture, and it has been suggested that space should be found in the JOURNAL for a few extracts. The following is from an article, headed "The New Architecture of London," which appeared in *The Times* of the 9th inst. :—

Every one who uses his eyes in the streets of London must be aware that a remarkable effort is now being made to produce a new kind of street architecture both practically and æsthetically suitable to its conditions. It is an effort often blind and ignorant, usually quite unsystematic, little encouraged by State patronage, and continually hampered by commercial necessities hostile to any kind of art. But its persistence through all these difficulties is all the more significant. Thirty years ago there was scarcely a sign of it. Buildings then, though free for the most part from the troubled and fantastic ugliness of the worst examples of the new movement, were either complacently mean and dull or else mere imitations of good models. Our best architecture then owed what virtue it possessed to the fact that it was dead, and the greatest praise that could be given to an architect was to call him scholarly. The ambition to be scholarly came in with Renaissance architecture, and, after the reaction from Baroque extravagance, became the chief ambition of Renaissance architects in all countries. Nor did the Gothic revival in England lessen it. The scholarly architects only changed their masters and mistook this change for originality. But mediæval church architecture was so obviously unsuited, both in form and in spirit, to modern shops and clubs and hotels and Government offices that the Gothic revival never made much way in the streets of London. Its greatest success was the Houses of Parliament, which have a pictorial rather than an architectural beauty, and impress the imagination so long as it does not trouble itself about their uses. The true problem of architecture is to express the uses of a building in terms of beauty; and an original architecture is likely to arise only when the architect cannot get away from this problem, when use dictates his design and his employers will not be content with it unless he makes it beautiful.

Speaking of the desire for beauty in the public, the writer says :—

This desire scarcely existed at all fifty years ago; but now it does exist, and it is growing stronger. Many persons of culture will question this, or will say that the new desire for beauty has very unfortunate results. So it has, as we might expect in a people that has lost all traditions of beauty, and in conditions that are most unfavourable to its production. But the ugliness produced by that new desire is different in character from the old ugliness produced by mere indifference, and incomparably more hopeful. This profusion of ornament that we see everywhere on our new buildings, these rash experiments in style, this incessant search for new material, however extravagant or absurd their results may be, are all signs that the great mass of men are no longer content with the bald ugliness or scholarly dulness of the past. We must remember that the desire for beauty is a natural instinct. For a time circumstances all conspired to suppress it; but the suppression could not be permanent. Now it is struggling again with circumstances; and its first struggles must needs be blind and ineffective. But they are not therefore to be despised any more than the first struggles for freedom of a people long oppressed. If we consider for a moment, we must see that the revival of the arts, and particularly of architecture, the mother of them all, cannot come about through the good taste of a few connoisseurs. There must be a popular instinctive desire for it, and that desire, by reason of its very universality and natural growth, cannot be governed by the good taste of connoisseurs. We must not compare its first fruits with any of the great popular art of the past, for that was always the result of a desire for beauty of long standing, and favoured rather than suppressed by circumstances. Nor must we compare them with the first efforts of primitive art; for they were preserved from extravagance by the artists' want of skill, by their lack of mechanical power, and by the absence of bad models. We have enormous mechanical power, considerable technical skill, bad models everywhere, and very difficult conditions to deal with. The result is that our architecture is in a state of anarchy. Old principles will not apply and new ones have not been established; but this very anarchy promises more than the mechanical uniformity that would certainly exist if there were no popular desire for beauty. It would be easy now to devise standard patterns for shops and flats, and hotels, and theatres, and restaurants, which could be readily adapted to particular circumstances, and improved now and then in detail, just like standard patterns of machines. They would be cheaper and more convenient than the innumerable experiments that are actually made; and, if there were no desire for anything but cheapness and convenience, they would certainly exist. They do not exist, because there is a powerful revolt against the standardising of buildings; and that can only be the result of a new desire for beauty, which, if it persists, is sure to produce some new kind of beauty.

It is natural that we should be taken unawares, astonished, and even shocked, by the first uncouth products of this new desire. The arts have so long lingered under the protection of connoisseurs that we have not even asked ourselves what would be likely to happen if they escaped from that protection. Now architecture has escaped and is running wild, running into a thousand follies in its new-found freedom, like the French in the Revolution. These follies are inevitable; but persons of culture need not be horrified by them and despair of the issue, like the *émigrés* of the Revolution. It is a common fault of connoisseurs to despond over the present state of the arts, and often they infect artists with their own despondency. But, luckily, there are many signs that our best architects are not despondent or scandalised. Their work also is inspired by the new desire; they do not stand aloof from it in mere scholarly pedantry, but do their best to control and enlighten it. Besides all the anarchical buildings of the new London, many are arising which show an attempt to adapt the great principles of the art to the conditions imposed upon them. How difficult that attempt is, how much hampered by materials, by building regulations, by commercial necessities, and by the bad taste of employers, only the architects themselves can know. But they also know that an original architecture can arise only through grappling with all these difficulties, and not through abstract designing that ignores them. Knowing that, and acting upon their knowledge, they have already produced many buildings of considerable actual beauty, and of still more promise for the future of the art.

The Right Use of Art Museums.

In an article on museums in this month's *Burlington Magazine* the opinion is quoted of a German authority that it would be better for art if there were no museums—better for the student if he were always taken to see the object of art amidst the surroundings for which it was originally created, where he could realise the just proportions the particular work of art held in relation to its purpose. "He should see the statue in its niche on the cathedral wall, the altar-piece in the chapel for which the artist designed it, even the bronze inkstand or the clock in the palace for which such articles of *vertu* were orginally made." *The Times* of the 23rd inst. takes this opinion as a text for an article on "The Right Use of Art Museums." Recalling the fact that public museums have had their origin in the private collections of great personages, and expressing the view that the very idea of collections of works of art is vicious, and has done much to deprive our notions of the function of art, the writer continues:—

Public museums are attempts to remedy the public poverty in art, but only by putting the public in the position of the private collector. Though a collection becomes public, it still remains a collection. Works produced for it have all the vices of the collector's art, and the great works of public art which it contains are still divorced from the problems they were meant to solve and the conditions in which they were produced. Thus the public in its museums can have only the collector's pleasure, and is always tempted to take the collector's view of art. The greatest art of all, architecture, cannot be collected, except in fragments that lose most of their significance because they are fragments. No great work of art is produced for a museum; and, when we see great works in a museum, it is only by a deliberate and painful effort that we can bring ourselves to understand the conditions for which they were produced, and so learn the lesson which they are meant to teach us. When we see an altar-piece in the National Gallery, how hard it is for us to imagine the altar it was painted to adorn, and how much harder to feel the religious emotion it was intended to express and communicate. Yet, unless we can do this, we are mere connoisseurs, enjoying art as we might enjoy good wine, with a narrow epicure's pleasure; and there is no reason why public money should be spent to give us that enjoyment. Private collections and museums of art, between them, are responsible for the connoisseur and the connoisseur's view of art which now prevails everywhere. There is no great harm in the connoisseur, but there is also very little good, so far as art is concerned. His enthusiasm raises the prices of old works of art, but does not help to produce new ones. For art made for the connoisseur's demand is sterile and purposeless. He gets his ideas of art from the art of the past, which he is apt to regard only as an instrument of his own pleasure; and from the art of the present he requires only what pleases him in the art of the past.

Touching the lessons which museums are meant to teach, and the pleasure to be derived from the contemplation of the objects they contain, the writer says:—

In the first place, the public must learn, from their own delight in great works of art, that such delight is noble and desirable for all; and they can learn this only by experiencing a noble delight, and not an idle epicure's pleasure. But a noble delight in great works of art, and a desire that such a delight should be shared by all, can come only to those who feel all the emotions which great works of art were designed to express and communicate; and these emotions are possible only to those who understand the conditions in which great works of art were produced, and the purposes for which they were designed. To revive such an understanding, therefore, is, or should be, the main purpose of our public museums, so that upon that understanding a great art may be established in the future. They are but imperfect and artificial means; but they are the best we can contrive in our present conditions; and it is the duty of those who enjoy them to make what use of them they can. Through the fragments of the Parthenon frieze, through the altar-pieces of Italian churches, through all the beautiful objects of art now preserved in the South Kensington Museum, the past tells us, however obscurely, the secrets of a noble delight which we have almost lost in the present; and it bids us not to be satisfied with our poor modern substitutes for that delight. The art preserved under glass cases warns us that it was not produced to be so preserved, and to be gaped at by holiday crowds, but that it was meant to be used, and enjoyed by the users of it. If we take this warning to heart, we shall see that its beauty expresses or symbolises the enjoyment of its use, and becomes a dead beauty when that use is at an end. But the melancholy charm of this dead beauty should make us determine not to be content with it, but to produce a living beauty of our own. It is not enough that we should have a disgust of the mechanical parodies of art that abound. That is easily acquired. The true purpose of museums is to give us a desire for a spontaneous, noble, and universal art of our own times, and some understanding of the means by which such an art can be produced.

Architecture is the mother of the arts, and the problem of architecture is to express use in terms of beauty. This remains, to some extent, the problem of all the arts while they still keep their connection with architecture. Even painting and sculpture are either controlled by the conditions of decoration imposed upon them by the great, useful art of architecture, or else share the purpose of the buildings which they adorn; and so long as arts share in the purpose of architecture, they have some of the grandeur and simplicity of that purpose. For architecture, while it remains great, is an art, not of individuals, but of a whole society, and expresses the religion or patriotism of that society, not the ideas or passions of individuals. No doubt some of the greatest painting and sculpture of the Renaissance were produced when these arts were beginning to be divorced from architecture; but their greatness was built upon a long tradition that had been established while architecture was still the predominant art and imposed its own purposes upon the other arts. Since architecture has lost its predominance, the other arts have slowly but surely been losing the grandeur and simplicity of purpose which they got from it. The first great collections of works of art began when the Renaissance was reaching its height, and when architecture was rapidly losing its predominance, and they were at once a symptom and an encouragement of the divorce between the arts. A collector must regard a work of art as an abstract thing, without any practical use or purpose outside itself; and works of art in a collection, even if they were produced for some purpose outside themselves or for some practical use, are divorced from that purpose or use and become mere instruments of pleasure to the collector. . . .

The Royal Sanitary Institute.

Lectures and Demonstrations on Sanitary Science as applied to Buildings and Public Works have

been arranged for the early months of the Session of the Royal Sanitary Institute at the Parkes Museum, Margaret Street, W. A demonstration on Building Materials and Construction will be given on the 19th October. Mr. H. D. Searles-Wood [*F.*] is announced to deliver lectures as follows:—Oct. 20, Building Construction; Oct. 22, Sanitary Building Construction and Planning; Soil and Local Physical Conditions; Oct. 23, Sanitary Building Construction (Advanced). Among other Demonstrations to be given are the following:—Oct. 26, on Baths and Lavatories; Oct. 27, on Waste Prevention and Water-Closets; Oct. 28, on Pipe-Joints, &c., and Drain-Testing Appliances; Nov. 5, on House Drainage; Nov. 9, on Water-Supply. On the 19th October Mr. J. Osborne Smith [*F.*] will lecture on School Buildings—Water-Supply, &c.; and on 27th October on Ventilation, Warming, and Lighting. On the 24th October Mr. J. Osborne Smith will give a Demonstration at a school on the General Planning of Schools and their Sanitary Arrangements and Fittings. Mr. W. C. Tyndale, M.Inst.C.E., lectures on Sanitary Appliances (Oct. 26) and on House Drainage (Oct. 30); Dr. James Kerr on Physical Conditions affecting Health in Schools (Nov. 5 and 6). Various lectures on Hygiene in its bearing on School Life by well-known experts have also been arranged.

School of Art Wood-carving.

The School of Art Wood-carving, Exhibition Road, Kensington, has been reopened after the usual summer vacation, and we are requested to state that some of the free studentships maintained by means of funds granted to the school by the London County Council are vacant. The day classes of the school are held from 10 to 1 and 2 to 5 on five days of the week, and from 10 to 1 on Saturdays. The evening class meets on three evenings a week and on Saturday afternoons. To give the public some security as to the competence of teachers of wood-carving, periodical examinations of students of the school are held, on the results of which certificates of competency are awarded. Forms of application for the free studentships and any further particulars relating to the school may be obtained from the manager.

The late L. W. Green [*F.*].

Mr. Leslie William Green [*Associate* 1899, *Fellow* 1907] died on the 31st August in his thirty-fourth year. Mr. Green was educated at Dover College, and served his architectural pupilage in the office of his father, Mr. Arthur Green. He attended lectures in the Arts School at South Kensington, and studied for a year at Paris. After serving two years as assistant in the office of his father he started in independent practice in 1897, his office in later years being at Adelphi House, Adam Street, Strand. His early commissions included the remodelling of 26 Kensington Palace Gardens, and various alterations and additions to Messrs. Lewis and Allenby's premises in Regent Street. He designed and carried out the shops and residential chambers erected upon the site of Nos. 29–30 St. James's Street and Nos. 26–27 Bury Street. In 1903 he was appointed architect to the Underground Electric Railway Company of London, and he designed and completed for the company more than fifty Tube stations, including the decorative works to station tunnels, platforms, and passages. He also did architectural work for the District Railway Company, designing and carrying out their large electrical transformer station at South Kensington, and supervising other works for them.

AN ADDITIONAL NOTE ON THE LATE HUGH STANNUS.

By Paul Waterhouse, M.A.Oxon. [*F.*].

THERE is a suggestive sentence in Mr. Phenè Spiers's appreciative Recollections of the late Hugh Stannus * which makes me wish to add a word or two of friendly homage to what has already been written. "If he had had a chance," says Mr. Spiers, "of winning some important competition he would have made a great name for himself."

I should think that no one who came into contact with Stannus's forcible personality could fail to realise that his was the nature of which artists are made. His looks, his speech, his idiosyncrasies—I use the word in a literal and entirely respectful sense—were all evidences of a character akin to that which finds its issue in vigorous artistic production. I like to record these things. They were signs of a very distinct personality, and are integral bits of the portrait that may well be allowed to stand out in memory. That fine head in the dignified skull-cap, that somewhat stately utterance, and not least of all that unique and scholarly handwriting, with its ingenious system of contractions, were signs, manifestations, of a mind that could think for itself, and could travel on its own course indifferent—genially indifferent—to the commonplace uniformity of the multitudes. If Mr. Stannus spent the longer years of his life, not in producing works of art, but in training artists, it was not, I feel sure, for the lack of the vision, the force, and the unswerving purpose which are the conditions of artistic creation. To come into company with him was to realise that his thoughts were fixed on high ideals and that his mind was, as we say, "made up" on many of those elusive subjects which to some remain for ever undefined.

* Journal, 29 Aug., p. 588.

I do not know that it lies in my power to add to the facts of Mr. Stannus's biography, but I may perhaps be allowed to supplement the statements already printed in the JOURNAL by recording that he was married in 1872 to Ann, daughter of the late John Anderson, B.A.; that Mrs. Stannus survives him, together with two daughters and a son (Dr. Hugh S. Stannus); and that, besides his membership of the architectural and artistic societies already referred to, Mr. Stannus belonged to the Hellenic and Japan Societies, to the St. Paul's Ecclesiological Society, to the Society of Arts and Crafts, and to that for the Preservation of Ancient Buildings.

On one occasion, when I had an appointment to meet him at the Institute on a subject of overwhelming dulness, it happened that I was on my way to Covent Garden, and I am afraid that we talked more of Wagner than of the matter on which we met as a sub-committee of two. Music was his chief recreation, and in his leisure he sometimes even composed. He was also a writer of verse, and once, I believe, he was responsible for the music and libretto of an operetta performed by the members of the Architectural Association.

There is no doubt that, having once devoted his energies to lecturing, he brought to bear on his career as a lecturer a singular combination of effective qualities. However evasive the nature of art may be, there was to be nothing vague about his methods of exposition. Scientific analysis, laborious induction, the formulation of law from individual facts—these were the processes of his work as a teacher; and with them was coupled a special lucidity of exposition and a wealth of illustration. One of the most striking proofs of his energy in the gathering of evidence is to be seen in his unique collection of photographs and lantern slides. Most of these were, I believe, of his own production, for he was an excellent amateur photographer, and had visited in person the scenes of the world's greatest architecture. Travel was in his eyes a great duty in the student of art. He advocated it warmly; and his knowledge of foreign languages, especially of Italian, served not only to bring his own mind into the company of Dante and Petrarch, but also to make him a valuable guide to those who accompanied his searches among Italian art on Italian soil.

Certainly his was a rare equipment for the enjoyment of all that is fairest among the products of human thought and human skill; and so far was he from keeping that enjoyment to himself, that there must be full many among his survivors who originally owed to his encouragement the awakening of that perception

"which seeing sees, and hearing understands."

REVIEWS.

CONCRETE.

Concrete: Its Uses in Building, from Foundations to Finish. By Thomas Potter. Third Edition, revised and enlarged. 8o. Lond. 1908. *Price* 7*s.* 6*d.* [*B. T. Batsford.* 94 *High Holborn.*]

This book, the first edition of which appeared in 1877, and the second in 1891, is the work of a practical man who has laboured for many years in concrete work. It has the merits as well as the defects of its class. It is free from the complications of mathematics or theory; it puts the practical ways of dealing with concrete—the results of much experience—in a way which will be readily understood by the builder, the clerk of works, or the architect for whom theory and algebra are things to be avoided. It does not deal primarily or chiefly with reinforced concrete, but rather with ordinary plain concrete, as to which there is much to be learnt.

A considerable part of the book—which is so changed in form, matter, and arrangement as to be more of a new book than a new edition—is devoted to the history of concrete, of monolithic walls and building appliances in connection therewith, and of fire-resisting and cement floors. There is an interesting chapter on aggregates, from which the following remarks on coke-breeze are taken:—

"There is a confusion of ideas and nomenclature with regard to the product arising from the consumption of coal. Here we call it ashes, cinders, clinker, and breeze.

"The siftings from ash-holes is used for burning bricks in clamps, and is also called "breeze"; ashes is the general name given to the residue of almost every kind of fuel besides coals; cinders is generally associated with the remains of fires in domestic buildings; clinker is the residue of coal which has partially calcined or fused from high temperature; and coke-breeze, sometimes called coke-ashes, is the finer part of the coke from gas retorts, but as it is now customary to re-use the best portions of the coke to assist in heating the retorts, and the remainder that will not pass a half-inch screen, for conservatory boilers and similar objects, the residue is too fine for general purposes. The portion that drops through the bars during the heating of the retorts is called pan-breeze, and being thoroughly burnt is the best for concrete."

There are chapters on the application of concrete to floors, roofs, and pavings, on slab walls and faced concrete walls, on concrete for landed estates, concrete foundations, &c., in which the author embodies the results of his forty years' experience, all of great interest and much of value. He disarms criticism to some extent by telling us that he is aware that the information contained in his pages "does not in some instances fall in with the views of other practitioners." He appears to differ from the advice given by the Royal Institute Committee, but that is sometimes because he applies the rules of the Committee to cases for which they were never meant. For instance, in the chapter on

Concrete Foundations he says that "the recommendation of the R.I.B.A. Committee that concrete should be deposited in layers not exceeding three inches in thickness will not, I think, find favour." Now the Committee's Report deals with reinforced concrete, which in general depends on its high quality and not on its mass for strength as ordinary concrete on foundations does. This remark applies also to the smaller size of the aggregate and the screening out of the sand, which also do not apparently commend themselves to Mr. Potter. Larger sized aggregates and less punning or beating make good enough concrete in mass, but the strength required in pieces subjected to stresses usual in reinforced concrete work could not be obtained without this ramming. Nor could the water-tightness, which is so necessary in some applications, be secured without it.

WILLIAM DUNN [*F.*].

SPECIFYING DECORATIVE WORK.

Specifications for Decorators' Work. A Guide to Architects, Engineers, &c. By Fredk. Scott-Mitchell. 8o. Lond. 1908. [*The Trade Papers Publishing Co., Ltd., 365 Birkbeck Bank Chambers, Holborn, W.C.*]

Every architect who has had to draw up a specification for painting and decorating must feel that a guide to that end is greatly wanted. He may know what the work, when done, should look like, and have gathered some knowledge of the details; but he cannot have such an intimate acquaintance with the processes and the reasons for them as to enable him to draw a specification which will secure good work, nor such as can form the basis for competition without many loopholes for evasion.

Mr. Scott-Mitchell's book should be a great help if carefully read through and discreetly used; for he points out many of the pitfalls common to such documents, and indicates where it is easy to trip in preparing them. It is doubtful, however, whether, in the effort to close all loopholes for error or evasion, he would not produce a specification too cumbrous and too complicated for any but very large works. As in many other branches of building, the real quality of the work will always depend on the competence and the character of the man who undertakes it. Old and pure linseed oil is as essential to good painting as thoroughly seasoned wood is to good joinery, and neither architect nor clerk of works can be quite sure of either beforehand. It is not sufficiently known, however, that if the builder's first two or three coats are executed in a bad quality of oil no purity in the materials of the decorator's subsequent finish, nor any care of his, can make perfect work. It is the first stages of painting which are all-important.

Taking the work in detail as specified in this little book, there are necessarily some items open to question. Thus, in making good to plaster-work there is no mention of "cutting out cracks"; and in every case defects are to be made good "in Keene's cement," which presents so different a face from plaster that it is, in many places, open to objection. Again, on page 27 and elsewhere we have oil-paint described as to be "made from genuine white lead or zinc oxide, or both." This last alternative, "or both," is not to be encouraged. In mentioning "driers" there is no caution against their excessive use—a practice very injurious to light colours, and to which painters are generally prone. Rape-oil is mentioned among painters' materials without warning. It is a pernicious adulterant of linseed oil, difficult to detect and fatal to good drying. The distinction in the proper use of different qualities of varnish is usefully pointed out (page 74), and should have attention. The injunction never to permit any varnish to be thinned I cannot endorse. There are many cases where a very high gloss is objectionable, and a satisfactory result may be had by thinning a good copal varnish with twice the quantity of best turpentine. Excessive thinning, however, would prevent hard drying.

In comparing the covering power of lead and zinc paints the author gives an advantage of 25 per cent. to the zinc, but without mentioning the great difference in bulk per lb. of the two materials. Curiously, he puts his illustration of the fact in reverse, which alters the percentage.

A chapter is given on painters' charges, as by measurement, &c. In another edition a brief description of the method of measuring, allowing for mouldings, &c., would render this part more complete. In his schedule the author apparently includes the "rubbing down" and preparation; but it would be well to mention that, in old buildings especially, the condition of woodwork, from neglect, &c., varies so much that a provision of day-work for this is commonly necessary in very variable degree.

Mr. Scott-Mitchell very properly gives two years as a reasonable interval after the completion of the building before final decoration. The impatient owner who disregards this advice will find much to regret later—shrunk door panels, discoloured or faded walls, and probably cracks in some ceilings. The little book contains much that will assist the architect, and no less the decorator himself, who, as the writer points out, suffers much from incompetent specifications. Very wisely it stops short with the more ordinary requirements—or nearly so.

When decorations of a more ambitious and more artistic character are in contemplation specifications and even drawings to small scale are apt to be delusive. Artistic quality cannot be specified in writing; and even Mr. Scott-Mitchell's phrase, providing that cornices shall be "picked out in harmonious colours," will not secure that excellent result. The fact is that for a good result in painting and decorating the only safe way is to be sure of the character of the man or firm employed; for

neither the quality of the materials, the skill with which they are used, nor the harmonious treatment of the colouring and ornamentation can be assured by the most ingenious specification nor by the most attractive "coloured sketch."

J. D. Crace [*H.A.*].

ROADS.

Manual of Road Construction and Maintenance. Compiled at the School of Military Engineering by Major E. M. Paul, R.E., Assoc.Inst.C.E. 8o. *Chatham*, 1908. *Price* 4*s.* 6*d. net.* [*Royal Engineers' Institute: Agents, W. & J. Mackay & Co., Ltd., Chatham.*]

Major Paul, of the Corps of Royal Engineers, shows in his *Manual of Road Construction and Maintenance* an intimate knowledge of his subject. He has, as he states in the preface, omitted the tables and statistics which may be found in the numerous engineering pocket-books, and are so frequently given in works of this kind, and has wisely confined himself to practical data which appear to be the result of his own experience. The book is divided into four sections, dealing with construction of roads and streets in a country similar to our own; roads constructed in an undeveloped country and for military purposes; maintenance, estimates, and specifications; and, lastly, bridges and provision for the escape of flood water. Several descriptions of cross-fall in roads are given, but in this country a curve from the channel to the centre is invariably adopted, being either a segment of a circle or formed with ordinates. The straight slope is for many reasons undesirable. There is one point which does not appear to have been treated—namely, the question of longitudinal fall in a road laid out in a perfectly level district. This peculiarity frequently happens in England, and one method of getting rid of the water is to slope the channel towards the gullies, keeping the crown of the road level throughout. This, however, causes an excessive cross-fall from the crown towards the gully. If, on the other hand, both crown and channel are kept graded in separate watersheds towards their respective gullies a uniform cross-fall is maintained throughout the road, but the undulating appearance may not be pleasant to look at or travel over. It would be an advantage if Major Paul would treat this subject in some future issue.

A useful comparison is drawn between the "Telford" and the "Macadam" types of road. The usual practice with us is to combine both systems. The specifications are good, and useful both for ordinary and tar macadam roads, while all the modern methods of road-making are dealt with, including Durax, granite-sett paving, wood and asphalte.

There are a few points in this otherwise excellent treatise that modern English experience differs from. In the figure No. 8, which represents a section of a granite-paved road, the curbs are shown to be splayed off on the channel side. This is not the practice, and there are many objections to it. The concrete foundation of the road is generally carried also under the curb, and a 3-inch step to the curb is too shallow.

With regard to wood-paving, red gum is mentioned as being an efficient substitute for Jarrah; but users of wood should seriously consider this point in view of recent experience in London. There is an error in fig. 9, which shows a 5-inch by 3-inch plank, 12 feet long, laid longitudinally between the wood-paving and the expansion joint; this is never done, and would be detrimental to the road. One or two courses of wood blocks are laid lengthwise instead. The general practice is against the laying of wood blocks during hot weather, as the subsequent wet causes them to expand excessively; a medium temperature and dry weather are preferable.

The author is more at home in his description of roads made in undeveloped countries, where sides of cliffs are worked out to form a military road, or a roadway is constructed alongside a deep gorge. Such roads as the Georgian military road from Vladikavkaz to Tiflis, 9 miles long, with a gradient of 1 in 20, present difficulties which are ably dealt with in the book, and the construction of a roof-covering to protect a road from a falling avalanche does not fall to the lot of every road-maker.

The figures on maintenance and estimates generally will prove useful to all interested in roads, while the diagrams and plates at the end are invaluable. Altogether the book is one to be recommended.

R. J. Angel [*A.*], M.Inst.C.E.

OLD FLEMISH TOWNS.

Les Vieilles Villes de Flandre. By A. Robida. Price 12*s. net.* 11 × 7. [*Paris: Libraire Dorbon-Aîné.*]

One can hardly imagine Mr. Batsford, for instance, producing a book like this in paper covers, but when one has passed within them the pleasure of the inspection, even if it be cursory, will obliterate the impression at first suggested. All students of Flemish architecture, whether tourists or architects, will find among the hundred and fifty drawings which illustrate M. Robida's pages a great deal to please and little to criticise. Unequal they may be, perhaps, but as a whole they give a faithful representation of the effect of Flemish buildings, ranging from the solid fortress to the beautiful town hall, from the simple gable to the turrets which have become bizarre. In the text, too, there is plenty of interest and delectation, with its stories of old-world hates and loves, which have left the cities as we see them now.

R. Langton Cole [*F.*].